DRC_ECABREN SEMI-ANNUAL REPORT April 2011- February 2012**ACTIVITIES**	**HIGHTLIGHTS OF ACHIEVEMENT**
Intermediate Outcome #1. Increased and in gender equitable manner utilization of improved and marketable bean varieties , new crop management techniques and micro-nutrient rich bean based products particularly by women	
P.I. #1.1. Number of HHs (m/f) simultaneously utilizing combinations of accessed technologies and practices in 1.1.1;1.2.1;1.3.1;1.4.1	
P.I. #1.2. Levels of on-farm bean yields	
P.I. #1.3 Level of satisfaction of end-users with: (i) improved varieties resistant to multiple stresses, (ii) integrated management options, (iii) micronutrient rich varieties and products, (iv) niche market varieties and value added products	
Immediate Outcome 1.1 Increased access by especially women farmers to improved dry bean varieties resistant to multiple environmental stresses	
P.I. # 1.1.1. Number of HHs (m/f) accessing improved bean varieties resistant to multiple environmental stresses	
P.I. # 1.1.2. Level of satisfaction of men and women farmers with options (channels) for accessing bean varieties resistant to multiple environmental stresses	
Output 1.1.1. Current and future risks to bean production and utilization associated with major environmental stresses and end user systems reviewed and analyzed	
Activity Set # 1.1.1.1. Review and analyze current and future risks to bean production and utilization associated with major environmental stresses (drought, floods, heat, acid soils, salinity, low soil fertility, risk of soil degradation, pest and diseases)	
Output 1.1.2. Genetic, physiological, pathogenic and pest mechanisms conferring resistance to different environmental stresses studied, validated and documented	

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Activity Set # 1.1.2.1. Study, validate and document the genetic, physiological, pathogenic and pest mechanisms conferring resistance to different environmental stresses (linking with capacity building) and generate new stress resistant bean germplasm

1.1.2.1.4. Identify sources of resistance to angular leaf spot, rust, anthracnose, aschochyta, web blight and halo blight, BSM, bruchids, aphids and whiteflies in various countries across PABRA (UG - partly funded by ATAAS). ECABREN: BU, RW, DRC-E. linked to 1.1.2.1.2

During the year 2011, 14 bush bean differentials and 13 climbing bean differentials were utilized to evaluate the main diseases of the region such as : Angular leaf spot (ASL), Anthracnose, Ascochyta, rust, root rot and Bean Common Mosaic Virus (BCMV)

The Table I shows some results of Mulungu Station

Bush type	ALS	Anthrac	Ascochyta	Rust	Root rot (R6)	BCMV
ACC714	4	2	1	1	6	1
PAN72	3	1	1	1	5	1
Amendoin	2	1	1	2	5	1
G5686	3	1	1	2	3	1
Mont Calm	4	1	1	2	6	1
VF8840LYPT6	5	2	1	4	2	2
M'SOLE	3	1	1	2	1	2
MLB49-89A	5	1	1	1	1	1
CODMLB078	3	1	2	2	1	1
KABULANGETI	3	1	1	1	3	1
RAJONOMBI	4	1	2	1	3	1
AND620	3	1	2	2	3	1
CODMLB001	4	1	3	2	2	1
MUNYU	3	2	2	2	2	1
Climbing type	**ALS**	**Anthrac**	**Ascochyta**	**Rust**	**Fusarium (R) 8**	**BCMV**
NYIRAMUHONDO	4	1	1	2	3	1
NAMULENGA	4	1	1	2	4	1
M211	4	1	1	3	4	1
CODMLV059	3	1	1	2	4	1
LIB 1	3	1	2	2	4	1
G59/1-2	4	1	2	3	5	1
CODMLV056	3	1	1	3	5	1
MLV224	3	1	1	2	3	

<table>
<tr><td>DRC_ECABREN SEMI-ANNUAL REPORT April 2011- February 2012ACTIVITIES</td><td colspan="7">HIGHTLIGHTS OF ACHIEVEMENT</td></tr>
<tr><td></td><td colspan="7"><table>
<tr><td>VNB81010
AND10
NUV178
CODMLV052
KIANGARA</td><td>5
3
4
2
4</td><td>1
1
1
1
1</td><td>1
2
2
1
1</td><td>2
2
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6</td><td>4
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4</td><td>1
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<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>1.1.2.1.5. Screen available bush and climbing bean germplasm for enhanced biological nitrogen fixation with and without rhizobia inoculation (UG-CRSP funding)</td><td colspan="7">This activity was conducted as part of the NUTRIBEAN project, at Mulungu Station, to test the effect of the inoculums species (CAIT 899) on the varieties Ngwaku Ngwaku, CODMLB007, ZKA93-10m/95, BRB194, AND620, K 132 and BAT 477 (non-inoculants' variety). No significant differences were found between the treated varieties and the varieties without application of inoculums. But the nodule number seemed to increase from 15.6 to 21.1 (mean) respectively at growth stage (R6) and at stage (R7)
<u>During the season 2011A</u>
The results were shown that no significant difference was found between the inoculants and non-inoculants, included the BAT477.
<u>During the season 2011B</u>
The results did not show significant differences between the treated and no treated bean varieties used in the experiment. But the nodule number seemed to increase at growth stage R6 (32.3) and at stage R7 (34.4)
<u>On-farm evaluation</u>
The same trend as at Mulungu Station was observed in collaboration with the partner CEDERU, north Kivu.
The BAT477 has shown free nodulation at Mulungu Station and at CEDERU Station, on-farm experimentation.</td></tr>
<tr><td colspan="8">Output 1.1.3. At least 130 new multiple stress resistant bean germplasm identified , widely tested and selected for release</td></tr>
<tr><td colspan="8">Activity Set # 1.1.3.1. Identify, select and test widely new multiple stress resistant bean germplasm for release</td></tr>
<tr><td>1.1.3.1.4. Screen available climbing bean germplasm for enhanced biological nitrogen fixation with and without Rhizobia inoculation - supported by N2 Fix Africa in DRC and Rwanda.</td><td colspan="7">The experiments conducted in year 2008 had shown that the climbing bean varieties fixed well the Nitrogen. The variety Nyiramuhondo was excellent nodule producer with 242 nodules (mean)</td></tr>
<tr><td>1.1.3.1.7. Evaluate germplasm for multiple environment stress resistance [bush and climbing MAC lines, BILFA nurseries (to</td><td colspan="7">18 BILFA varieties were evaluated during the year 211 to maintain germination power. Those varieties were: Hm21-7, AFR 708, LSA144,</td></tr>
</table>

<table>
<tr><td>DRC_ECABREN SEMI-ANNUAL REPORT April 2011- February 2012ACTIVITIES</td><td>HIGHTLIGHTS OF ACHIEVEMENT</td></tr>
<tr><td>low N, low P, saline and/or acidic soil), drought and RR

lines]</td><td>M’Mafutala, ACC714, ARA4, ZAA5/2, UBR (92)25, ECAPAN021, RWR1946, CNF5520, CIM9426, GLP2, DRK7, AN9021466, M’SOLE, GR13P, KIRUNDO.
Drought nurseries (ANN-1, ANN-2, ANN-3, ANN-4) were evaluated during the year 2011 at Kipopo and INERA Station. The promising varieties were: CAL143 (1286,4kg); NUA193 (1156.0kg); NUA548 (937.0kg); NUA363 (979.2kg). NUA325 (911.0kg); NUA128 (1776.0kg); NUA132 (1479.0kg); NUA383 (1114.6kg); NUA134 (1109.0kg); NUA158 (968.9kg); NUA340 (964.9kg); NUA566 (838.0kg); NUA159 (817.0kg); NUA226 (1007.8kg); NUA256 (937.5); NUA175 (835.9kg)</td></tr>
<tr><td>1.1.3.1.9. Increase nucleus seed of micro-nutrient rich pre-release/released varieties and/or promising genotypes to facilitate further on-farm evaluations.</td><td>In season 2011A; 16 micro-nutrient rich pre-release/released varieties went seed increase to produce 1094 kg and 9 climbers to produce 873kg
In season 2011B: 15 bush varieties were multiplied to produce 2136 kg and 9 climbers went seed increase to produce 1042kg.</td></tr>
<tr><td>1.1.3.1.10. Carryout PVS across agro-ecological zones capturing farmers' preference and gender considerations for selecting bean varieties</td><td>During the year 2011, the PPB/PVS activities were conducted in many sites such as: Walungu, Mushinga, Nyangezi, Kamanyola, Luvungi and Baraka-Fizi in South Kivu

Table III: PPB/PVS evaluation capturing farmers’ preference and gender considerations
<table>
<tr><th>VARIETY NAME</th><th>Man %</th><th>Woman %</th><th>VARIETY NAME</th><th>Man %</th><th>Woman %</th></tr>
<tr><td><u>Bush bean types</u></td><td></td><td></td><td><u>Bush bean types</u></td><td></td><td></td></tr>
<tr><td>1)CODMLB001</td><td>100</td><td>100</td><td>1)NUA91</td><td>67,7</td><td>34</td></tr>
<tr><td>2)UBR(92)25</td><td>85</td><td>92,8</td><td>2)NUA100</td><td>67,8</td><td>64</td></tr>
<tr><td>3)MORE 88002</td><td>80</td><td>100</td><td>3)NUA8</td><td>60,5</td><td>55</td></tr>
<tr><td>4)BRB194</td><td>76,4</td><td>93,7</td><td>4)NUA99</td><td>35,7</td><td>56</td></tr>
<tr><td>5)ZKA93-10m/95</td><td>73,3</td><td>60,0</td><td>5)NUA86</td><td>46,4</td><td>64</td></tr>
<tr><td>6)Hm21-7</td><td>66,6</td><td>85,7</td><td></td><td></td><td></td></tr>
</table></td></tr>
</table>

7)RWR10 8)AND620	66,6 57.1	94,7 92,8	6)NUA64 7)NUA92 8)NUA93	25 80	56 85,7
VARIETY NAME	**Man %**	**Woman %**	**VARIETY NAME**	**Man%**	**Woman %**
Climbing bean types 1)MUSALE 2)NYIRAMUHONDO 3)G59/1-2 4)NAMULENGA 5)MLV224	 100 100 100 100 100	 44,4 23,0 100 42,8 100	Climbing bean types 6)M211 7)VCB81012 8)KIANGARA 9)VCB 81013 10)Nain Kyondo	 100 85,7 65,0 59,0 36,3	 100 68,7 13,3 87,5 63,1

Output 1.1.4. Gender responsive and efficient dry bean varieties de-livery systems developed, assessed and used for targeting end users

Activity Set # 1.1.4.1. Develop and assess gender responsive and efficient seed delivery systems

1.1.4.1.1. Increase/multiply/produce foundation seeds by both formal and informal seed producers/ partners (all countries); at least 200 kg (breeder) and 400 kg (foundation) for each released variety - engage both public and private partners	**Eastern DR. Congo** **The following partners are implicated in seed increase (foundation seeds), more than 133 kg of seeds were distributed to 14 farmer's associations:** **PABU (30kg); ACOP (6kg); CINYABUGUMA (12kg); RHUDOSANYE (10kg); RHUDOSANYE II (6kg); MUZUSANGABO (2.5kg), C.H. (5kg); PLANATION KADJUCHU (5kg); APAFED (26kg)** **Other famers'associations produced more that 611.8kg during the year.** **Western DR. Congo** **A group of 469 farmers were involved in seed multiplication among them 230 males and 239 females to produce 2208.5kg** **A total of 11organizations (including NARS Bean Program) covered 11.62 hectare to produce 7871.7kg.** **From this produced quantity an average of 5700kg were purchased. The buyers were 141 males/females.**
1.1.4.1.3. Mainstream and carry out specific new action research on small seed packets and other seed marketing especially targeting women and resource constrained farmers. Funds for countries not supported by ASARECA	**In collaboration with the partner PABU/South Kivu, a new research action was conducted on small seed packets and other seed marketing targeting gender, especially women.** **In season 2011A at PABU site in South Kivu, 54 women and 20 men bought 30 kg of the varieties: AND 10, G59/1-2, VCB 81013 (climbing beans); RWR 10, AFR 708, BRB194, Hm21-7, CODMLB001, SOYA**

DRC_ECABREN SEMI-ANNUAL REPORT April 2011- February 2012**ACTIVITIES**	**HIGHTLIGHTS OF ACHIEVEMENT**
	FUPI, those as bush bean varieties. **In season 2011B, the same activity was repeated with 20 women and 5 men using the same varieties.**
1.1.4.1.4. Design and mass produce information materials and tools for promoting bean varieties and integrated crop management technologies - (Linked to MCK in selected SABRN countries; in ECABREN - KE, RW, BU, ET, TZ and UoN - BioInnovate) and assess the effectiveness and efficiency of these delivery systems (ASARECA support to UG, DRC, BU, RW)	**More than 20 posters and 200 leaflets were developed and distributed to key partners: PABU, COOPAM, CEDERU,UMAMABU, FONIMIS/Uvira, APAFED/Uvira……..**
1.1.4.1.6. Hold national platform workshops to review seed systems research interventions/approaches (Use platform meetings to collect M&E information) - linked to McKnight Foundation in selected SABRN countries	**Two national platform workshops were carried out at South and North Kivu, respectively October 21, 2010 and July 22, 2011. The meetings were an occasion of exchanging information of activities conducted at research and farmer's levels.**
Immediate Outcome 1.2. Increased access to cost effective and environmentally friendly integrated stress management options (e.g. for soil fertility and water, pest and diseases) by particularly women farmers	
P.I.#:1.2.1. Number of men and women farmers accessing integrated options for managing environmental stresses	
P.I.#1.2.2. Level of satisfaction of men and women farmers on the approaches for accessing integrated options for managing environmental stress	
Output 1.2.1. Thirteen existing and new cost effective options and strategies for managing different environmental stresses identified and developed	
Activity Set # 1.2.1.1. Develop/Identify new/existing options and strategies for managing different stress environments	
1.2.1.1.2. Develop/identify new, simple, environmentally friendly ISFWM management options for potential scaling-up	**The following environmentally friendly ISFWM management options were evaluated on station and on-farm during the year. These options were: Tithonia vegetation, manure, compost and fertilizers. The farmer's implication decided at more than 50% (men and women) on the use of Tithonia, manure, and compost.** **At farmer's level, manure and compost were adopted at 50% by men and women. They rejected fertilizers because the financial difficulty and traditional believe; They argued that the fertilizers reduce soil fertility and make foods loosing taste.**
1.2.1.1.2.1 Identify simple environmental friendly ISFWM options and scale up with partners.	**Application of 5options in plot demonstrations composed of compost, Tithonia, manure and fertilizer amendments were evaluated in participation with farmers. Even though the fertilizer amendment with 120 kg of NPK has shown high yield, 19,2% of men and 3,8% of women selected the option because of unavailability and high cost of the fertilizers. The option with manure was preferred with 42,3% by men and 61,5% by women because of erosion reduction, yield increment and reduction of disease and insect**

DRC_ECABREN SEMI-ANNUAL REPORT April 2011- February 2012**ACTIVITIES**	**HIGHTLIGHTS OF ACHIEVEMENT**
	effects.
1.2.1.1.2.5. Validate the use of livestock manure on bean natural nodulation and pests and disease incidence under low soil pH and fertility	**The application of 10T/ha of manure on poor soil where the variety Hm21-7 was evaluated has shown an increment of the nodule number (10 nodules) comparing to the check producing 4 nodules with non manure application even though the application of 120kg of NPK produced 15,6 nodules.** **The pressure of diseases was reduced by using the scale (1-9), where 1=excellent and 9= mediocre. The results were: ALS (4-5); Anthracnose (2-3); Ascochyta (2); Rust (2); and BCMV (2-3).** **The similar tends were observed with insect incidence that have been also reduced.**
Output 1. 3.1. Thirteen bean varieties with enhanced micronutrient concentration and superior agronomic traits developed	
Activity set # 1.3.1.1. Develop bean varieties with improved micronutrient concentration and superior agronomic traits	
1.3.1.1.1. Identify and validate parental lines for key traits and generate new crosses, advance segregating populations and select good lines	**The mineral analysis of seeds using the X-ray fluorescence spectrometry has helped to identify the micro-nutrient rich bean that can be utilized as parents in crossing activities. The local variety Cuarentino 0817 evaluated with XRF spectrometry has shown a high iron concentration with 100 ppm**
1.3.1.1.3. Increase seed of NUA, NUV and KAB lines and evaluate for G X E interactions across locations for mineral density and agronomic traits	**Evaluation by G x E interactions allowed in three sites: Mulungu, M'Vuazi and Kipopo allowed selecting the promising NUA lines among the 18 evaluated at Mulungu during the year 2011.** **NUA 8 (1836kg/ha); NUA 68 (1980kg); NUA 75 (2019kg/ha); NUA 81 (2155 kg/ha);NUA 85 (1812,5 kg/ha); NUA 86 (2134.5kg/ha); NUA 87 (1963,5 kg/ha); NUA90 (2028kg/ha); NUA91 (2035.5kg/ha); NUA 92 (1969.5); NUA94 (2005kg/ha), NUA97 (2185.5kg/ha); NUA99 (1802.5kg/ha) and NUA100 (1886.5kg/ha) produced yield ranges from the two checks variety Maharagi soja (1559.5 kg) and variety Hm21-7 (2251kg/ha)** **The NUV and KAB lines were segregating during the year.**
1.3.1.1.6. Produce nucleus, breeder seed of micronutrient rich bean varieties for pre-release and released varieties and distribute to partners	**The seed increase was conducted with wide adapted biofortified bean varieties:** **During season 2011A (September 2010): 16 bush released varieties: 1094kg and 9climbing varieties: 837kg** **In season 2011B (March 2011): 15 bush varieties:2136kg and 9 climbing varieties: 1042kg**
Output 1.4.1. Competitive and market demanded bean products, including 23 niche market varieties (new snap runner, canning and organically produced) and value added products, developed in collaboration with smallholder farmers	
Activity Set # 1.4.1.1. Identify and promote, in collaboration with smallholder farmers, competitive and market-demanded products [these include niche market bean varieties (snap runner canning and organically produced] and value added products	

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1.4.1.1.4. Establish platforms to link producers to key markets (e.g. Super markets, processors, exporters). Linked ASARECA in UG, DRC-East	**Four platforms were established in South and North Kivu to link producers to key markets as followed: 2 platforms in South and 2 platforms in North Kivu.**